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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,620	08/01/2007	Koji Kawaguchi	062901	3827
38834 7590 03/26/2010 WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036				
EXAMINER JOHNSON, PHILLIP A				
ART UNIT 3656		PAPER NUMBER		
NOTIFICATION DATE 03/26/2010		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

Office Action Summary

Application No.

10/589,620

Applicant(s)

KAWAGUCHI ET AL.

Examiner

PHILLIP A. JOHNSON

Art Unit

3656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 3/16/10

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 16, 2010 has been entered.

Status of Claims

The amendment filed on February 16, 2010 is acknowledged. Claims 1 – 2 are pending in this application. As amended, claims 1 and 2 overcome the 35 U.S.C 112, second paragraph rejection cited in the previous office action.

Claim Objections

Claim 1 is objected to because of the following informalities: the term "roller" in line 8 should be changed to - - the roller - -. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa et al. (USP 6,086,261).

Re claim 1, Nakagawa (Fig. 9) discloses an outer ring 1 having an outer ring raceway surface undergoing crowning, an inner ring 2 having an inner ring raceway surface undergoing crowning, and plural tapered rollers 3 having a rolling surface undergoing crowning, which are located as rolling universally between said outer 1 and inner 2 ring raceway surfaces.

Nakagawa does not expressly disclose the total crowning amount, defined as the sum of crowning amount of outer ring 1, the crowning amount of inner ring 2 and two times the crowning amount of the roller 3, is more than 50 μm , and the crowning ratio of the outer ring 1, defined as crowning amount of outer ring 1 divided by the total crowning amount, is 40% or more, and the roller 3 crowning ratio, defined as two times the roller 3 crowning amount divided by the total crowning amount, is 20% or less.

Nakagawa does disclose that the crowning amount has an impact on roller settling, or running-in time prior to bearing preload, such that optimizing the crown amount came improve running-in time, thereby reducing the time to bearing preload (col. 12, lines 62 – 67 through col. 13, lines 1 – 18). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Nakagawa, such that the total crowning amount, defined as the sum of crowning amount of outer ring 1, the crowning amount of inner ring 2 and two times the crowning amount of the roller 3 times, is more than 50 μm , and the crowning ratio of the outer ring 1, defined as

crowning amount of outer ring 1 divided by the total crowning amount, is 40% or more, and the roller 3 crowning ratio, defined as two times the roller 3 crowning amount divided by the total crowning amount, is 20% or less, since it has been held that discovering optimum value or a result effective variable involves only routine skill in the art.

Re claim 2, Nakagawa (col. 13, lines 9 – 13) discloses the inner wheel crowning ratio, defined as crowning amount of inner ring 2 (max. 20 μm) divided by the total crowning amount (max. 50 μm for compound crowning), is 10% or more ($20/50 = 0.40 > 0.10$).

Response to Arguments

Applicant's arguments with respect to claims 1 and 2 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHILLIP A. JOHNSON whose telephone number is (571) 270-5216. The examiner can normally be reached on MON - FRI, 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PHILLIP A. JOHNSON/
Examiner, Art Unit 3656

/Thomas R. Hannon/
Primary Examiner, Art Unit 3656